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The U.S. Environmental Protection Agency also expressed concern in its February 27, 2004 letter on the Tier 1 Draft EIR/S the Altamont was prematurely rejected:

> "Based on our review, the Altamont Pass (Altamont) alternative appears to have been prematurely eliminated, and, because of the severity of their environmental impacts, Diablo Range Direct (Diablo) alternatives and the Pacheco Pass (Pacheco) alternatives face significant permitting obstacles and would need to be substantially modified to avoid anticipated environmental impacts." Attachment X, page 1.

The first step in establishing the feasibility and potential superiority of the Altamont alignment is pointing out the weakness of the following two key arguments raised by the DEIR/S against its feasibility:

First, HSRA *concludes* that Altamont would be operationally infeasible because trainsets would be split in three different directions at Newark/Fremont to serve San Francisco, Oakland and San Jose. The Phase II extension of service to Oakland is the key difficulty here, since all alignments assume service to San Francisco and San Jose during Phase I. In the Authority's view, adding Oakland service in Phase II would necessarily greatly reduce frequency of service to each of these locations. Second, HSRA claims that the required San Francisco Bay crossing at Dumbarton creates insurmountable environmental and cost problems due to significant impacts on sensitive wetlands, salt water marshes, aquatic habitat, and sensitive species within an surrounding the Don Edwards San Francisco Bay National Wildlife Refuge (DEIR/S page S-5. See also, Screening Report Appendix A, page 2 "Confirmation of Previous Decisions.")

Neither basis for rejecting an Altamont Pass alternative was adequately researched or documented. To the contrary, information included in the record appears to support the superiority in both respects of an Altamont Alternative.

A. An Altamont Alternative Appears to be Operationally Feasible

The most fundamental of the DEIR/S's two arguments for the prior elimination of the Altamont alignment is the operational objection that Altamont requires a three-way split to serve the Bay Area, ostensibly to ensure direct service to Oakland. This argument was recently dismissed by Oakland Mayor Jerry Brown. Mayor Brown's April 20, 2004 letter to HSRA Chair Joseph Petrillo notes that:

> "A prime argument made by the Authority against the Altamont Pass alignment is that it would require an awkward splitting of service between San Jose, San Francisco and Oakland. However, Oakland does not get direct service in Phase One. In fact, considering the other extensions of the rail system which are also not included in Phase One--San Diego, Sacramento and numerous feeder services—it seems highly unlikely that an Oakland extension will happen any time in our lives. The argument about a three-way split is specious." (see Attachment X)

The Mayor points out that only an Altamont alignment would serve Oakland during Phase I of the project. This service could be improved "if a small amount of funding were used to upgrade the BART system with passing tracks so that express service between Oakland, Fremont and Pleasanton could be instituted." Thus, Oakland service could be provided through coordination with other transit services (a supposed goal of the project), avoiding the cost of building a special Oakland HSR line. By contrast Oakland might never receive service under HSRA's favored alignments, which would reach Oakland only in Phase II under a scenario of dubious cost effectiveness.

B. The Record Does Not Support Rejection of an Altamont Alternative Based on Environmental Feasibility and Cost Concerns

The second main argument presented in the DEIR against Altamont is that the required Bay Crosing at Dumbarton is environmentally infeasible and carries a high, unpredictable cost.

At the time that Altamont was dropped, its required bay crossing was a secondary reason for its elimination. A June/July 1999 memo recommending Pacheco rather than Altamont, which was adopted by the Board, devoted only these two sentences to the subject:

> "An added benefit of the Pacheco Pass is that a Bay Crossing is not required to service the San Francisco Peninsula. This should not be overlooked considering the environmental uncertainties of new construction across the San Francisco Bay." (Memorandum page 12).

No further data were presented at that time to compare Pacheco and Altamont routes on any environmental basis (the Diablo alignments had not yet been proposed). There was no cost estimate for Dumbarton Bridge environmental mitigation, no discussion in the record of Pacheco and Altamont impacts to wetlands and stream crossings (all study to date had found Altamont to be superior in terms of wetlands impacts), no comparison of impacts to protected lands, no exploration of construction impacts or growth inducement. While the DEIR/S suggests that Bay Conservation and Development Commission permitting and a $1 billion-plus mitigation estimate justify omitting an Altamont alignment from consideration, in actuality it appears that these reasons were introduced long after the alignment was dropped primarily for the operational reasons addressed above.

Nevertheless, the DEIR provides particularly insufficient analysis and information regarding the Bay Crossing and the comparability of its environmental impacts with those caused by other alignments.[2] For instance, according to Appendix 2-H, page 2-H-3 under

[2] For example, the DEIR/S states with respect to the Altamont alternative and need for a Bay crossing that "The Bay Conservation and Development Commission (BCDC) has discouraged any new or expanded use

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"wetlands," an Altamont alignment would impact approximately 27 acres of wetlands as compared with Pacheco which impacts approximately 290 acres of wetlands. The Altamont bay crossing appears to impact only 6.7 acres of wetlands as compared with the project's Milford Line between San Jose and Oakland which would impacts nearly 50 acres in the National Wildlife Refuge, or eight times the impact of the project. [3]

Doubtless, a Dumbarton crossing would entail environmental impacts that should be fully explored in a new, recirculated EIR. These impacts must be carefully compared to the impacts resulting from other alignments. Also, given the operational promise of an Altamont alignment and its avoidance of some of the major environmental impacts along competing alignments, HSRA should explore variations in bridge structure, operational plans, and bridge siting to see if Dumbarton-related environmental impacts may be mitigated. HSRA's vigorous pursuit of alignment variations along the Diablo and Pacheco alignments (including developing at least four versions of the Diablo route and at least three Pacheco alignments, and holding a "tunneling summit" and hiring consultants to minimize costs and help skirt Coe Park boundries) should be a model for the creative energy that could be brought to exploring the formerly-preferred Altamont alignment.

The DEIR/S asserts that not only the environmental impacts of a Dumbarton crossing, but particularly the costs of related mitigation are a major factor in avoiding Altamont. The DEIR suggests that mitigation costs for the crossing could reach $1 billion, based on a cursory comparison to the San Francisco International Airport (SFO) runway extension. This assertion appears to be without merit (the cost estimate for construction of the bridge itself, rather than the mitigation, is addressed later in this letter). The full extent of background material presented in DEIR/S Appendix 2-J to support this assertion is as follows:

> Costs do not include environmental mitigations (e.g. wetland replacement). Based on the mitigation costs estimated for current projects affecting the Bay (San Francisco Airport [SFO] runway extension), the mitigation costs could reach as high as $1 billion, nearly doubling the cost of the infrastructure. DEIR/S Appendix 2-J, page 2-J-2.

The DEIR/S gives no reference supporting the reported $1 billion mitigation cost in relationship to the SFO project. It also fails to present any methodology for translating supposed SFO mitigation costs to a high speed rail project. Two points are particularly salient: (1) The Dumbarton crossing likely is not equivalent in environmental impact to the proposed SFO runway expansion into the Bay and (2) The $1 billion figure suggested

of Bay waters or shoreline habitat important to sensitive species." DEIR/S at page 2-37. This general comment is not specific to the HSR project. Has specific information been submitted by BCDC to the Authority that such a crossing would be infeasible? Was this statement based on information on the proposed Altamont Alternative from BCDC?

[3] The Bay Conservation and Development Commission has apparently not been consulted with respect to either the feasibility of a Dumbarton Bay crossing or the comparative impacts of these alternatives. Such a consultation should occur, with the results included in a revised DEIR/S.

for SFO runway mitigation is totally unsupported as applied to either the runway expansion or the Dumbarton crossing.[4]

With regard to the comparability of the projects, the SFO runway expansion sought to "pave over twice as much of the Bay's surface as all other BCDC-permitted projects combined" over 35 years. It would have eliminated up to 808 acres of the Bay's surface, with over 1,200 acres of additional dredging. The project would dump "an additional 45 million cubic yards of fill material in the Bay" an amount greatly in excess of the "less than 1 million cubic yards of dredged material per year" suggested by current guidelines.[5]

By contrast, Coastal Commission Executive Director Sam Schuchat indicated in an April 7, 2004 meeting with HSRC Chair Joe Petrillo that a Dumbarton crossing might be coordinated with a major salt pond restoration project to remove fill from the Bay, rather than increasing Bay fill. Far from causing similar damage to a runway expansion, BCDC Executive Director William Travis indicated in the same meeting that a Dumbarton rail crossing might be permitted particularly because it would help reduce pressure to expand airport runways into the Bay. The DEIR/S errs when it asserts unsupported information concerning the SFO runway expansion as a surrogate for mitigation costs of this potential segment of the high speed rail project, rather than providing detailed project-specific information developed in coordination with the relevant regulatory agencies.

The DEIR/S also treats mitigation costs for the Dumbarton crossing in an inconsistent and unique manner compared to all other mitigation costs for the project. According to DEIR Appendix 4C-10:

> The total cost of environmental mitigation was estimated to be 3% of the line construction costs (i.e., track, earthwork, structures, etc.) for ***each*** segment, based on other recently implemented transportation corridors in California. This factor is based on the average to estimate a total cost of mitigation [our emphasis].

Clearly, the DEIR cost estimate for Dumbarton mitigation approaches 100% of "line construction costs," not "3%." A revised detailed analysis of the actual impacts and costs of a Dumbarton crossing must be included in a revised DEIR/S. By implication, the DEIR/S also should provide detailed analysis of actual impacts and costs for mitigation of other portions of the proposed project (such as constructing major tunnels through

[4] The Dumbarton crossing cost issue was further muddied by HSRA board member Rod Diridon's editorial published on May 24, 2004 in the San Jose Mercury News. Mr. Diridon claims that, for an Altamont alignment, "A new, high bridge is required at a cost of $1.4 to $4 billion." In addition, with regard to mitigation costs, one published account suggests an unconfirmed, but much smaller figure than $1 billion: "Airport Director, John Martin has offered to provide up to $200 million in funds for environmental mitigation, potentially restoring 15 acres of wetlands for every 1-acre of fill." ("Environment Mitigation Opportunity" by Doug Perry in "Organized Labor" /www.sfbctc.org/70802-airport.htm).

[5] Summary of technical report on Bay impacts prepared for the FAA and City of SF: www.savesfbay.org/docUploads/sfofactsheet%2Epdf

wilderness areas), since it has diverged from the "3% of construction costs" rule only in the case of the Bay Crossing.

Beyond the weakness of the DEIR's two main arguments against the feasibility of Altamont, the record suggests that an Altamont alignment would serve more people and cost less to operate than either the Pacheco or Mt. Hamilton alternatives, and avoid massive construction and development in rural and wilderness areas. These points supporting the feasibility of an Altamont alignment are fleshed out in more detail below.

Omitteed Altamont Alignment Appears to be Favorable under the DEIR/S's Ten Alignment Criteria

While HRSA's two main reasons for omitting Altamont from the EIR are questioned above, the DEIR/S offers a more detailed rubric to justify alignment decisions. Unfortunately, the DEIR/S does not apply these criteria in an evenhanded or rigorous fashion. Indeed, it appears that, had an Altamont alignment been included in the DEIR/S, it would have outperformed HSRA's chosen alignments based on these criteria.

The 10 key criteria set out in the DEIR/S Executive Summary for screening and evaluating alignment alternatives are as follows:

- maximize ridership and revenue potential
- maximize intermodal connections
- maximize compatibility with existing and planned land uses
- minimize travel time to be competitive with other modes of travel
- minimize operating and capital costs
- minimize impacts on natural resources (wetlands, wildlife corridors, habitat for TES, floodplains) and farmlands)
- minimize adverse social and economic impacts
- minimize impacts on parks and cultural resources
- avoid areas with geologic/seismic soils constraints
- avoid areas with potential hazardous materials (DEIR/S at S-2)[6]

[6] While the DEIR/S Executive Summary indicates that these ten factors were used to screen alternatives, other portions of the DEIR/S modify this list in ways that conflate these factors or add other factors. For instance, Table 2-H-4e, which provides the basic summary of alignment comparisons, organizes information under seven headings, rather than the ten factors. "Maximize Ridership/Revenue Potential" is the first heading. Under the "Bay Area to Merced," segment, this heading includes no ridership or revenue data. Rather, it includes travel time from Merced to San Jose and the length of the segments. The time travel data give no indication of how they compete with other modes along this alignment segment, and in any case the time competitiveness between Merced and and San Jose is not the real issue—competitiveness with other modes for destinations such as Sacramento to San Francisco are more pertinent because they are sharply affected by this segment and involve greater ridership. By grouping travel time and segment length under "Maximize Ridership and Revenue Potential," the DEIR/S improperly substitutes a very limited analysis of these elements for a true ridership/revenue analysis. If the ten categories are really the basis of analysis, a clear presentation of findings for each category should be provided.

Substantial evidence in the record suggests that an Altamont alternative is superior with respect to at least nine of the ten criteria, as demonstrated below:

Criterion 1: "Maximizing ridership and revenue potential" (for a more complete discussion of modeling issues related to this point, please see our attachment on ridership:

Several documents in the record "find" Altamont superior to other alternatives. As summarized in our attachment on ridership, the DEIR/S's basic 1996 ridership study (partially updated in 2000) finds that an Altamont alignment would carry the most riders and generate the most revenue, particularly when service to San Jose is included. These results became part of the basis for the Intercity High Speed Rail Commission's endorsement of an Altamont alignment in its "Summary Report and Action Plan."

Also, as Loma Prieta Sierra Club has pointed out, the DEIR/S does not incorporate likely coordinated local commuter public transit service into its ridership estimates. However, there is evidence in the record that the Stockton to San Francisco commuter corridor that would be served by an Altamont alignment has better potential for commuter ridership than the Diablo/Pacheco alignments, either on HSRA-operated service or on a service using the same tracks, but operated by another entity. The table below from the 1996 Summary Report and Action plan indicates that a Phase I HSR system on an Altamont alignment could capture 33% of the commuter market share in this corridor (since that time, upgraded Baby Bullet Caltrain service has likely provided much of the benefit estimated for the Gilroy to San Francisco corridor, making the Altamont commuter advantage over the Pacheco route more pronounced):

Table 4.13 Commute Patronage Potential, Year 2015

	Annual Ridership (millions)	Annual Revenue ($millions)	Revenue Per Rider	Inbound End-to-End Market Share
1. Bakersfiled to Los Angeles via I-5	2.7	$15	$5.56	69%
2. Bakersfield to Los Angeles via SR 14	3.7	$23	$6.13	61%
3. Gilroy to San Francisco	2.8	$11	$3.74	24%
4. Stockton to San Francisco CBD	3.0	$13	$4.20	33%

Source: Dowling Associates

This same report takes care to point out that "The commute corridor from Gilroy to San Francisco has the lowest annual revenue potential of the corridors, mainly due to its shorter end-to-end distance and the presence of more stations closer to endpoints (Summary Report and Action Plan, 4-31)".

Criterion 2: "Maximize intermodal connections with other transportation facilities:[1]" Altamont HSR service could augment, rather than compete with, Caltrain Baby Bullet

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and regular service, and could readily serve the East Bay through East Bay HSR stations and intermodal connections with California's largest passenger rail system, BART. East Bay service would also link to Capitol Corridor trains. Also, the existing network of freeways and roads would help provide access to stations along an Altamont alignment between Stockton and Freemont (this is an issue of public safety during emergencies, as well as ridership). By contrast Pacheco and Diablo alignments traverse unpopulated or sparsely populated areas between San Jose and Merced with significantly less road and transit access.

Criterion 3: "Minimizing travel time to be competitive with other modes of travel;"[7] The major missing point in the travel time comparison for the Bay Area to Merced segment is that the omitted Altamont route has by far the fastest travel time in California's second largest intercity travel market: Sacramento to San Francisco. The Diablo and Pacheco alignments provide travel times for this market that are totally uncompetitive with automobiles, which are the dominant mode of travel in this market. Furthermore, one again must consider the impact of Phase I of the project versus the less certain Phase II. For East Bay, Stockton, and Modesto residents, Phase I of an Altamont alignment provides more competitive travel times to Southern California (and vice versa) than Diablo or Pacheco alignments. The DEIR/S provides only the most cursory exploration of travel time and its implications for different alignments. This analysis is not an adequate basis for choosing an alignment.

Criterion 4: "Minimize operating and capital costs:"

(a) Capital costs: Capital costs are clearly lower for Altamont when last-minute, non-comparable inflation of Bay Crossing costs is accounted for. The 1999 Corridor Evaluation found that:

> In addition, this [Altamont] alternative is 58 miles shorter in terms of joining the Central Valley alignment with the Bay Area. Since it is shorter and has fewer tunnels, the Altamont Pass is less costly than the Pacheco Pass (Final Corridor Evaluation, p. 3-31).

Lower cost was a key component of the Intercity High Speed Rail Commission's 1996 Altamont recommendation: "The Altamont Pass is the least costly of the three passes in total. The Pacheco Pass is $719-$733 million more costly than Altamont Pass in total, and is 37-45 percent higher on a per mile basis." (1996 Summary Report and Action Plan, page 3-30). If the sharp escalation of published Altamont costs that occurred after HSRA decided to eliminate this route prior to the EIR/S process includes valid elements, then each considered alignment should undergo a comparable new cost estimate, with

[7] The DEIR/S Appendix comparison charts for alignment alternatives combine the first two criteria into one encompassing ridership, revenue, and travel time competitiveness. As suggested in our ridership analysis, these elements, while related, are not the same. For instance, an alignment that maximizes travel time competitiveness with automobiles may not maximize revenue (but it may produce significant environmental benefits and impacts). However, an alignment that maximizes revenue likely does not maximize ridership. These are exactly the kinds of distinctions a thorough EIR/S analysis should elucidate.

careful attention to the specific construction and mitigation costs of elements such as tunneling in remote and geologically unstable areas, aerial structures, and construction through wetlands.

Also, recent cost overruns at the much larger and more complex Bay Bridge project argue for a careful analysis of specific proposed Dumbarton crossing structures, rather than the DEIR/S's rough estimate based on a different structure that has a greater high channel clearance and span (the San Mateo Bridge). This analysis must fully explore options to reduce expenditures through lower structures, coordination with the planned upgrade of the existing Dumbarton rail bridge and related mitigation, and potential coordination with ongoing salt pond restoration projects in the area. It should also consider the experience of the Dumbarton highway bridge, which was considerably less expensive, in inflation-adjusted terms, than the estimate provided in the DEIR/S. Finally, as suggested above, the DIER/S's doubling of Dumbarton bridge costs based on an approximately 100% mitigation cost is out of step with every other cost estimate in the DEIR/S.

(b) Operating and Maintenance (O&M) Costs: The operating cost model is based on total system mileage and should show Altamont with the lowest costs on this basis. Indeed, DEIR/S Appendix Table 2- H-3 rates Altamont "most favorable" for capital and operating costs combined. This finding agrees with the 1999 Corridor Evaluation, Exhibit 3-35, which estimates operating costs for the Bay Area HSR segment at $122 million per year for an Altamont alignment and $177 million per year for a Pacheco alignment (as noted elsewhere, this comparison was done before the Diablo alignments were considered and no "apples-to-apples" comparison of operating costs for the three routes is presented in the DEIR/S). While "operating and capital costs" are one of the ten criteria supposedly used to screen alternatives, this "most favorable" rating for an Altamont alignment is not reported in the body of the DEIR/S.

Instead, the DEIR/S provides the following language, implying that Pacheco alignment O&M costs are most favorable:

> "…fewer daily train sets (complete assembly of engines and cars) would be required for the Pacheco Pass option, and this could result in reduced initial capital costs (fleet procurement) and lower operating (less on-board train personnel) and maintenance (fleet size, non-revenue train miles, etc.) costs. It would be practical and cost effective to operate train service to the Bay Area via the Pacheco Pass (DEIR/S at 2-36).

The Appendix adds elsewhere that Pacheco has "potentially lower operating and maintenance costs."

While O&M cost estimates related to particular segments of the HSR system along different alignments are available in earlier studies, the DEIR/S fails to report actual estimates of O&M costs for any route. Clearly, an Altamont alignment should not be eliminated based on conjecture about "potential" O&M savings that "could" result, particularly if all quantitative evidence on the record suggests that the eliminated route is

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least expensive. If O&M costs are important, they deserve thorough, straightforward treatment. A revised DEIR/S should clearly present its exact dollar estimates of O&M costs for each alignment, based on the same ridership and economic assumptions and data.

This analysis should be careful to take into account variations in bond payment costs based on different capital costs—apparently even the greater revenue claimed for the Pacheco alignment is insufficient to cover the increased bond payments resulting from higher initial capital costs. Finally, the tunneling conference report suggested that energy requirements will vary significantly depending upon the steepness and height of mountain passes. The Altamont alignment involves considerably less climbing than the Pacheco and Diablo alignments. Yet the energy factor in the O&M cost analysis is a constant over the whole system. The DEIR/S should explain the energy and cost effects of different mountain pass alignments, including any capital and operational cost effects associated with related ventilation or maintenance issues.

Criterion 5: "Minimizing impacts on natural resources." While we are deeply concerned that the DEIR/S fails to include many elements of an adequate environmental impact analysis, the record includes numerous suggestions that an Altamont Pass alignment would result in fewer impacts on natural resources (extensive comments by the Loma Prieta Chapter of the Sierra Club, The Nature Conservancy, Advocates for Coe Park, the California Department of Parks and Recreation, and others expand upon this point) than the alignments carried forward in the DEIR/S. For instance, the Intercity High Speed Rail Commission decided, based on several previous studies, that " The Panoche and Pacheco Passes would have higher impacts than the Altamont Pass, particularly to wetlands and habitat for threatened and endangered species" (1996 Summary Report and Action Plan, page 4-31). Later, HSRA found in its 2000 Environmental Summary Report that "Overall, the Pacheco Pass Corridor would have a higher potential for more adverse environmental impacts as compared to Altamont Pass option" (p. 52).[8]

Our Attachment C on biological impacts goes into more depth on this subject, but several examples will suggest the DEIR/S's deficiencies in this area, particularly with regard to constructing and operating the project through wilderness and undeveloped land.

[8] Other examples: DEIR Appendix 2-H-4e compares Bay Area-to-Merced alignments. It shows a Pacheco alignment requiring either 10 or 12 miles of tunneling (see also DEIR page 6-10, with Diablo alignment tunneling lengths ranging from 16-20 miles). Under this scenario, Altamont is the alignment with the least amount of tunneling (8.9 miles), an activity with potentially severe construction impacts on the environment. Also according to Appendix 2-H, page 2-H-3 under wetlands, Altamont impacts approximately 27 acres of wetlands as compared with Pacheco which impacts approximately 290 acres of wetlands. Moreover, a new bay crossing appears to impact only 6.7 acres of wetlands as compared with Mulford Line between San Jose and Oakland which would impacts nearly 50 acres in the National Wildlife Refuge or 8 times the impact of the project. The DEIR/S appears to overlook the fact that the proposed Los Banos station would be immediately adjacent to lands considered part of the Grassland Ecological Area. The train itself would run through the Grassland Ecological Area, fragmenting a critical southern spur of the Grassland Ecological area from the rest of the contiguous wetlands.

For instance, construction impacts are ignored in the DEIR. In a largely undeveloped area like the Diablo Range, construction impacts can be significant and permanent. Access roads for equipment and hauling, for example, once built, will remain indefinitely, and inevitably facilitate future development. Authority staff have verbally downplayed this impact by stating construction access roads could be avoided by constructing the route off the end of the track as it is extended. However, this technique would raise costs considerably, yet the cost implications have not been considered when comparing alignment choices. This is just one example why it is important to analyze alignment, design, impact, mitigation and cost consistently and concurrently.

Also, fire is a critical element for maintaining the ecological health of the Oak woodlands, grasslands and chaparral plant communities found in the Diablo Range. The presence of high speed rail in the heart of the Diablo Range wildlands would dramatically change fire management protocols, including the need for extensive fire breaks, vigorous suppression of wildfires, and much more stringent limitations on controlled burns. The resulting impacts to the ecology of the area are probably unmitigatable, but have not been considered by the DEIR. By contrast, the Altamont alignment, which follows already developed corridors, would probably not require major changes to current fire management regimes. This is an example of why environmental impacts need to be fully understood and evaluated before alignment decisions are made.

Furthermore, even the DEIR/S's efforts to avoid obvious major impacts through Diablo alternatives will likely result in major unmitigable impacts. For example, the Diablo Direct North alignment, which was introduced as an option to avoid Henry Coe State Park, would traverse the biologically valuable Isabel and San Antonio Valleys. These valleys contain extensive mountain meadows that support sensitive species (Tule Elk and Antelope) that depend on open grasslands with unimpeded ability to roam. The high speed rail alignment is proposed to cross through the center of these meadows at grade. Both the noise and physical impediments posed by this design would cause significant harm. Raising the rail on trestles could potentially reduce impediments to movement, but exacerbate noise impacts. Lowering the rail into covered trenches could potentially eliminate both of these impacts, but in turn destroy the springs which feed the meadows and support all forms of wildlife through the hot and dry summer months.

Also, Diablo and Pacheco alignments each impact the Don Edwards National Wildlife Refuge along the proposed San Jose-Oakland connection—and arguably more severely than an Altamont alignment. Impact to this Refuge supposedly accounts for elimination of the Altamont alignment. A thorough exploration of the differential impacts of these alignment sections is required before choosing an alignment.

Criterion 6: "Minimizing adverse social and economic impacts (e.g. growth inducement)." The growth-inducing analyses says the Hamilton/Pacheco alignments have "low" potential impacts (DEIR/S at 6-16). The DEIR/S totally ignores the effect of introducing infrastructure (eg, water, power, access roads, stations, plus police and fire services) into an area that has almost no human infrastructure. The DEIR/S's summary of its alignment consideration process claims that "[m]ost of the corridors considered

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follow existing highways or railroad lines, particularly in urban areas to avoid or minimize environmental impacts (DEIR/S at 2-2)." However, "most" of the DEIR corridors connecting the Central Valley to the Bay Area do not follow this rule. The three Diablo routes carried forward in this DEIR cut an entirely new path through rugged, unspoiled mountain wilderness terrain. The two Pacheco alignments carried forward parallel *rural* highway 152. Also, as one background study noted "While State Route 152 extends through the length of this pass, it is not possible to follow the existing roadway alignment along most of the pass." (Summary Report and Action Plan, page 3-14).[9] The likelihood that these alignments traversing rural and undeveloped areas will increase significant growth and more intensive development is extremely high. It is frankly misleading and defies common sense to characterize them as "low." Yet, the DEIR/S fails to adequately characterize these potentially significant impacts.

Also, as comments by the Grasslands Water District suggest, growth inducement in this internationally-important biological resource area also is estimated to negatively impact the local economy. By contrast, high speed rail service to Northern Central Valley Communities under Phase I of an Altamont alignment, with appropriate "smart growth" constraints, could create positive social and economic benefits for those communities decades in advance of potential Phase II service along other alignments.

For the Diablo and Pacheco alternatives, a revised DEIR/S must describe the likely growth scenarios with and without the project including housing development in areas previously less accessible; new job creation; new roads and services for the project and as a result of indirect growth. The section should discuss how the introduction of HSR could change (including accelerate) the timing, type and location of growth within adequate areas of influence. Maps should be used to identify areas where land may convert from agricultural or open space to suburban or urban uses. Tables should be used to indicate how land use may change before and after the project, including housing densities; total population with/without the project; total jobs with/without the project; land conversions from open space and agriculture to urban/suburban uses; rural subdivision activity and the like. A similar analysis must be included on the Altamont alignment using comparable terms and assumptions. This exercise is technically feasible and must be included in a revised DEIS/R.

Criterion 7: "Maximize compatibility with existing and planned land uses." In the broadest sense, an Altamont alignment would use a major developed commuter corridor while Diablo and Pacheco alignments would rely much more heavily on wilderness or undeveloped areas.

Criterion 8: "Minimizing impacts on parks and cultural resources." Out of concern that the DEIR/S did not adequately study alignment alternatives that would avoid serious impacts to state parks, the California Department of Parks and Recreation has provided the following comment to HSRA:

[9] By contrast, the Altamont alignment excluded from the DEIR 2000 follows major US Interstate Highways I-580 and I-680 and could use freeway medians for a portion of the route.

> The California Department of Parks and Recreation encourages the California High-Speed Rail Authority and the Federal Railroad Administration to consider only rail corridor alternatives which avoid either direct or indirect impacts to units of the California State Park System and other critical publicly and privately protected conservation lands in order to avoid habitat fragmentation and degradation of publicly held natural resource values. For example, we suggest reconsideration of the northernmost crossing of the Diablo Range (the so-called Altamont Pass alignment). This choice will avoid direct and indirect impacts to Henry W. Coe State Park and to the San Luis Reservoir State Recreation Area. (Aug 19, 2004 correspondence from State Parks director Ruth Coleman to HSRA and FRA).

Criterion 9: "Avoid areas with geologic/seismic soils constraints." In general, this DEIR/S does not provide adequate data and analysis to reveal significant differences that likely exist between Northern Mountain Crossing Alignments. However, new exploration, construction, and access-related issues likely favor an Altamont alignment over Pacheco and Diablo alignments due to risk, costs, public safety and environmental damage. For instance, a major reason why the mountain valleys east of Mount Hamilton are so rich in wildlife is that, despite a generally very arid climate, there are numerous year-round springs. These springs are likely fed from groundwater aquifers whose water originates in the Sierra Nevada mountains, crosses the Central Valley following subterranean strata and emerge in the Hamilton range where the strata layers are uplifted and exposed. Extensive tunneling, as proposed by the Diablo and Pacheco routes could have significant and devasting impacts on wildlife, yet this potential impact is not even mentioned, much less analyzed. For further comments on geology and seismic issues, please see the attached expert analysis by Slosson and Associates.

Criterion 10. The remaining alignment criterion—hazardous materials constraints—is not found by the DEIR/S to disfavor Altamont.

In summary, a review of the ten criteria offered by the DEIR/S to assess alignments suggests that an Altamont alignment would have been a strong contender if it had been included as an alternative in the DEIR/S. Altamont's potential to maximize ridership and revenue, maximize connections with other modes such as BART, produce competitive travel times, minimize impacts on natural resources, reduce growth inducement, and avoid parks and incompatible land use (such as planned flood control and conservation easement acquisition) is documented throughout this letter and suggested frequently in the record.

In order to meet CEQA/NEPA requirements and for internal consistency, the DEIR/S must thoroughly and consistently apply any analysis to all alignment alternatives in advance of choosing an alignment. Unfortunately, the instant DIER/S has not done so.

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Beyond the DEIR/S's inconsistent use of ten criteria to analyze Northern Mountain Crossing alignments, examples of numerous further gaps and inconsistencies in the analysis of these alignments are detailed below.

DEIR/S PANOCHE ANALYSIS PROVIDES ANOTHER EXAMPLE OF UNEVEN ALIGNMENT COMPARISON

It is worth noting that the DEIR/S's basic summary of background studies is misleading in its treatment of northern mountain crossings. Chapter 2 of the DEIR/S begins with a "background" summary of three major sets of studies justifying its decisions: a 1994 LA-Bakersfield study, a 1996 Corridor Evaluation, and the 1999 Corridor Evaluation. The DEIR/S then directs the reader to Figure 2.3-1, which vaguely summarizes the recommendation of the 1996 corridor evaluation as follows: "recommended network of corridor alternatives." Figure 2.3-1 includes Panoche, Pacheco, and Altamont northern mountain crossings, giving the impression that the Commission suggested all three for continued evaluation.

Actually, the Commission issued a 1996 "Summary Report and Action Plan." While this report was the culmination of the predecessor agency's analysis it is not mentioned in the Chapter 2 summary of previous studies. As noted before, this summary report specifically recommended the Altamont alignment in the following language: "Of the three northern mountain pass options (from south to north: the Panoche, the Pacheco and the Altamont), the Commission recommends the Altamont for linking the Central Valley to the greater San Francisco Bay Area. This option generates higher ridership and revenue for the system, and is less costly to construct than the two other mountain passes considered." (Summary Report and Action Plan, 1996 page ES-7). A revised DEIR/S should clearly acknowledge that a major body of taxpayer-funded study culminated in an Altamont recommendation, which the Authority discarded soon after it began to meet and chose to exclude from the DEIR/S.

While the DEIR/S discards the major results of the prior Commission's work supporting an Altamont alignment, it often relies upon aspects of that work that do not conflict with favored Pacheco and Diablo alignments. For example, the DEIR/S's treatment of the Panoche pass alternative relies upon pre-1997 ridership and environmental studies, providing a window into the kind of reasoning the HSRA could use in a recirculated DEIR/S, for purposes of consistency, to justify including an Altamont alignment.

The DEIR/S first notes that Panoche was dropped due to "low ridership and revenue…" (DEIR/S at 2-35). The "low ridership" referenced for Panoche is only 0.4% lower than Pacheco pass ridership in the same study[10]—doubtless within the margin of error. Panoche revenue was found to follow a similar pattern—almost indistinguishably below that for Pacheco. Altamont ridership and revenue was superior to both. To our knowledge, no subsequent Panoche Pass ridership and revenue studies have provided any further basis for comparison between Panoche, Pacheco, and Altamont alignments. If

[10] Independent Ridership and Passenger Revenue Projections for High Speed Rail Alternatives in California, 1996, Table 6-12, page 6-45.

this early study finding that Panoche has very slightly lower revenue and ridership than Pacheco is good enough to dismiss the Panoche alignment based on ridership and revenue, then it also should justify further study of Altamont.

Each further reason cited by the DEIR/S to drop Panoche argues by implication that Altamont is superior to Pacheco. The DEIR/S notes that "…a Panoche Pass alignment was estimated to cost $500 million more than a Pacheco Pass alignment." However, the same study found Altamont to be up to $2 billion less expensive than Pacheco. The DEIR/S touts Pacheco's "higher intercity ridership for the San Francisco to Los Angeles section than the Panoche Pass option because it would serve a greater portion of the Central Valley population and would provide slightly faster travel times between the major markets." DEIR/S at 2-35. However, the same 1996 studies found that Altamont bested Pacheco on exactly this point: carrying higher intercity ridership than Pacheco due to better northern Central Valley service and "slightly faster" service in the basic LA-SF market.

The DEIR/S continues in its Panoche analysis:

> the Pacheco Pass would provide a superior link to Sacramento and the northern San Joaquin Valley since it is 35 to 40 mi (56 to 64 km) north of the Panoche Pass. Ridership for the Pacheco Pass would be much higher than the Panoche Pass since trips from Sacramento/northern San Joaquin Valley to the Bay Area would take substantially longer via the Panoche Pass. ..Costs would also be substantially higher since the network (in total) would be more than 30 mi (48 km) longer using the Panoche Pass.

If these reasons have any general importance in the DEIR/S, they should be applied equally to an analysis of the Pacheco and Altamont alignments. Altamont would provide a much superior link to Sacramento and the northern San Joaquin valley, since it turns towards the Bay Area 78 miles further northeast on I-99 than Pacheco. Sacramento and northern Valley trips would take substantially longer on Pacheco than Altamont. Costs based on operations over the total network length will be more on Pacheco than Altamont, since overall Pacheco system length is around 70 miles (10%) longer. These same arguments also mitigate against the Diablo alignments, relative to Altamont.

While the DEIR/S's dismissal of the Panoche Pass is based on reasons that are given little or no weight in analyzing other alignments, it provides an interesting window into the type of analysis that could be applied to Pacheco, Diablo, and Altamont alignments.

Unstable Descriptions of the Proposed Project Alternatives

Instability in the project description frustrates comparison of the eliminated Altamont alignment with alignments retained in the DEIR/S. It appears that, as the project has changed over time, important studies and reports relied on to prepared the DEIR/S have not been updated to reflect a consistent and adequate description and comparison between alternative alignments.

Comment Letter O049 Continued

The following timeline is useful to illustrate how major changes in the basic project definition over time have frustrated a thorough comparative analysis of a full range of alternatives and have created an unstable definition of the project throughout the DEIR/S:

- 1994-96: Ridership studies and environmental studies suggest that Altamont is preferable to Pacheco and Panoche alignments.
- 1996: CA Intercity High Speed Rail Commission chooses Altamont as the preferred alignment and suggests creation of the High Speed Rail Authority to implement the project.
- Summer 1999: HSRA drops Altamont in favor of Pacheco in preparation for the Business Plan.[11] From this point until introduction of Diablo alignments in 2001, only the Pacheco alignments were actively considered.
- January 2000: Second major ridership study published, including only the Pacheco alignment.
- January 2000: Business Plan published using only the Pacheco alignment in Northern California. Today, this Business Plan alignment remains the basis for the statewide legislative bond measure drafted with HSRA's assistance and placed on the ballot in 2006. The Business Plan alignment and related ridership modeling provide the cost justification for the project in the DEIR.
- April 2000: The "California High Speed Rail Environmental Summary Report," states that "Two main options were considered for joining the Central Valley alignments with the Bay Area"—the Altamont and the Pacheco alignments (pages 19-21).
- In mid-to-late 2001, several Diablo routes were added for consideration as the possible alternative to Pacheco for purposes of the DEIR/S.
- December 2001 tunneling conference and consulting work leads to modifications in proposed Pacheco and Diablo routes.

[11] The DEIR/S notes that Authority was legislatively mandated to "move forward in a manner that was consistent with and continued the work of the Commission" (DEIR/S at 2-4). In actuality, it appears that HSRA quickly dropped the Altamont alignment that was the culmination of the Commission's ridership and environmental studies, and began vigorously working to make other previously disfavored or unforeseen alignments more plausible. Also, staff memos informed the Board in 1999 that, only after the Board adopted the alignment recommendation would a Business Plan be prepared. After that, "... the next phase of the project is the preparation and adoption of program environmental studies and documents." (July 14 memo). Thus, the Board arguably focused on a single preferred alignment prior to initiating the EIR/S needed to choose alignments.

- January 2004 Biological Resources Bay Area to Merced Technical Evaluation compares only Pacheco and Diablo alignments.

Since early studies compared Altamont, Pacheco, and Panoche, but later studies compared Pacheo and Diablo, no single body of studies compares Altamont, Pacheco, and Diablo alignments on the same basis. Thus, Diablo alignments were not included in the environmental and technical decisions used to choose the business plan, which forms the basis for many aspects of the DEIR/S's comparison of the project with no project and with a modal alternative.

One example of the results of this progression of "projects" and analyses is the unclear picture of tunneling—a major portion of overall project capitol costs—along the Pacheco alignment. Chapter 2 of the DEIR claims that a Pacheco alignment could involve "as little as five miles" of tunneling (page 2-54). Chapter 6 of the DEIR (page 6-10) claims Pacheco requires either 10 miles or 12 miles of tunnel, depending on which alignment is used. However, the map provided in Chapter 6, figure 6.2-3 suggests closer to 15 miles of Pacheco tunneling for the Northernmost Pacheco option near Gilroy.

References to shorter Pacheco tunneling apparently arose in the record after the completion of the December 1999 Corridor Evaluation that summarizes much of the data used to compare alternative alignments. The Corridor Evaluation reports that Pacheco requires "12.3 miles" of tunneling" (Corridor Evaluation, page III-31).

The later 2002 Screening Report estimates "a total as little as about 5-miles" of tunneling (Screening Report, I-12). However, the Screening Report notes that the shorter tunneling option "would have the most impacts on natural resources and social and economic resources" (Screening Report, I-14). Cost estimates in the Screening Report (which was used to determine which alignments to carry forward for the DEIR/S process), used yet another Pacheco tunneling scenario, which is worth quoting at length because it suggests the types of issues involved in achieving one, stable description of tunneling for the project:

> …for this screening, an alignment was identified that was lower in profile, allowing for an evaluation of reduced levels of disturbance on the surface, but resulting in approximately 18 miles of tunnel. While this would minimize environmental impacts, it increases the length of tunneling. Vertical alignments (depths) for the Pacheco Pass alignments need to be further evaluated, given the potential **major cost differences** in higher versus lower profiles, in more short tunnels versus fewer longer tunnels, and in **potential environmental impacts of surface construction across sensitive natural areas [our emphasis]**. It is clear that different assumptions for tunneling unit costs and the vertical profile for the Pacheco Pass alternatives could potentially lead to an even greater disparity of costs between the Direct Tunnel and Pacheco Pass alignments. Additional analysis is necessary to gain a better understanding of and more confidence in the appropriate tunneling approach (e.g., use of tunnel boring machine versus drill and blast techniques) and associated cost estimates. [Our emphasis]